

Amendments to the Specification

In the Drawings

Please delete Figures 29A, 29B, and 29C.

Please substitute Figures 3, 13, 14, 15, 30, and 31 with the attached Figures 3, 13,
14, 15, 29A, 29B, and 30.

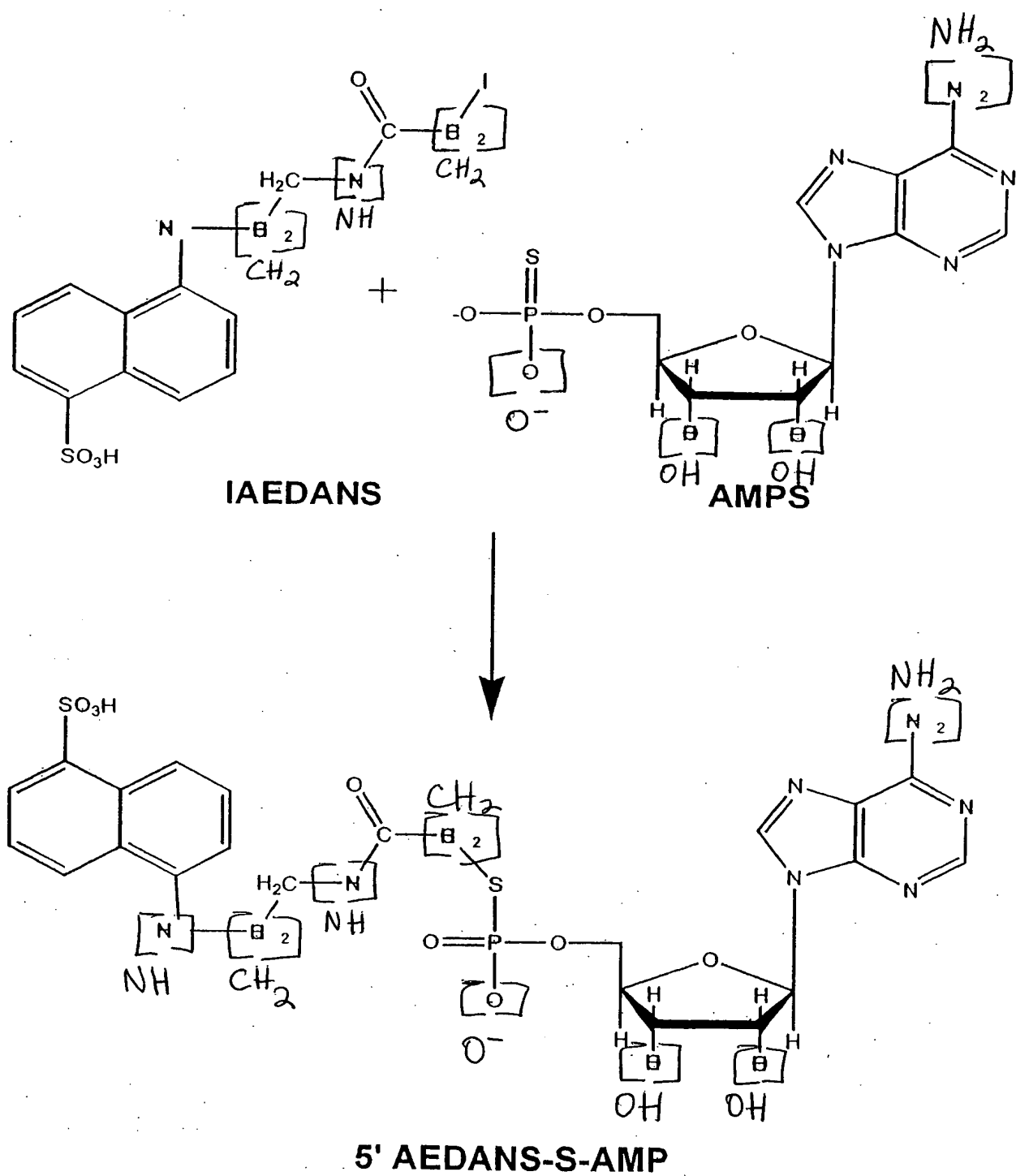


FIGURE 3

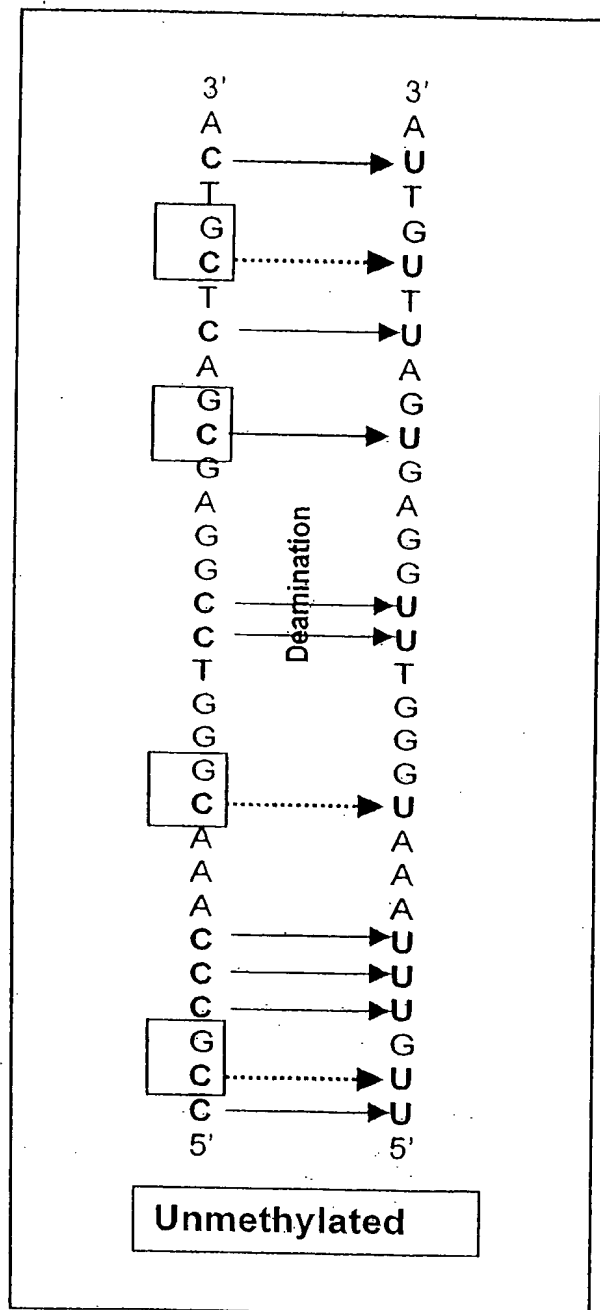
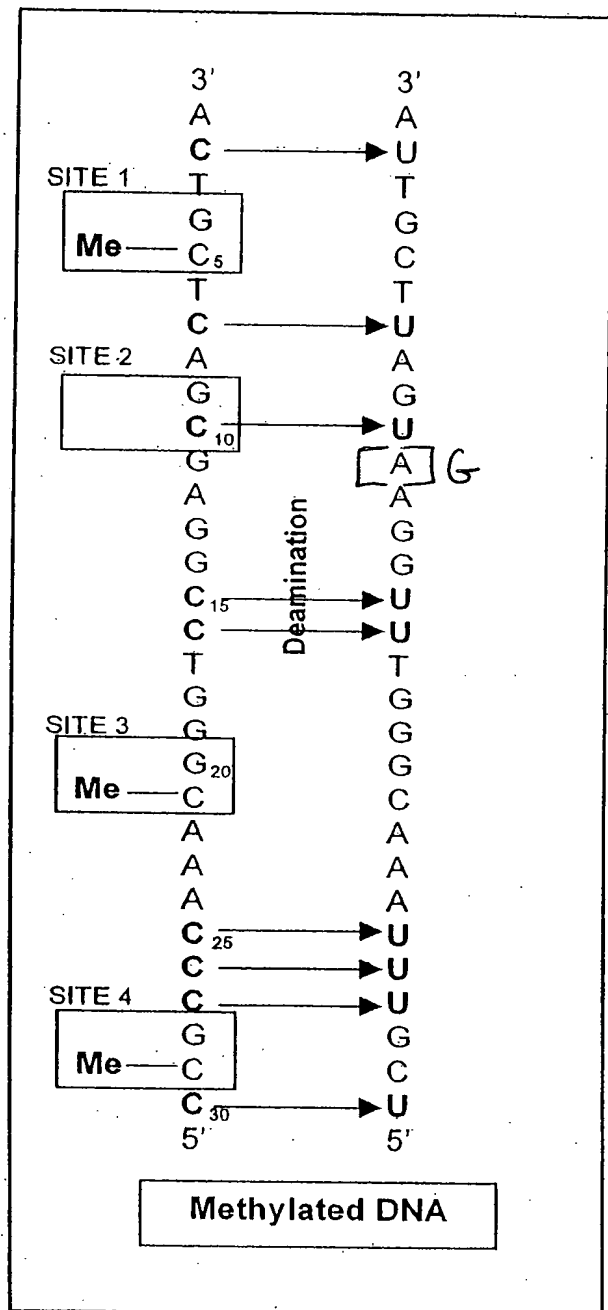


FIGURE 13

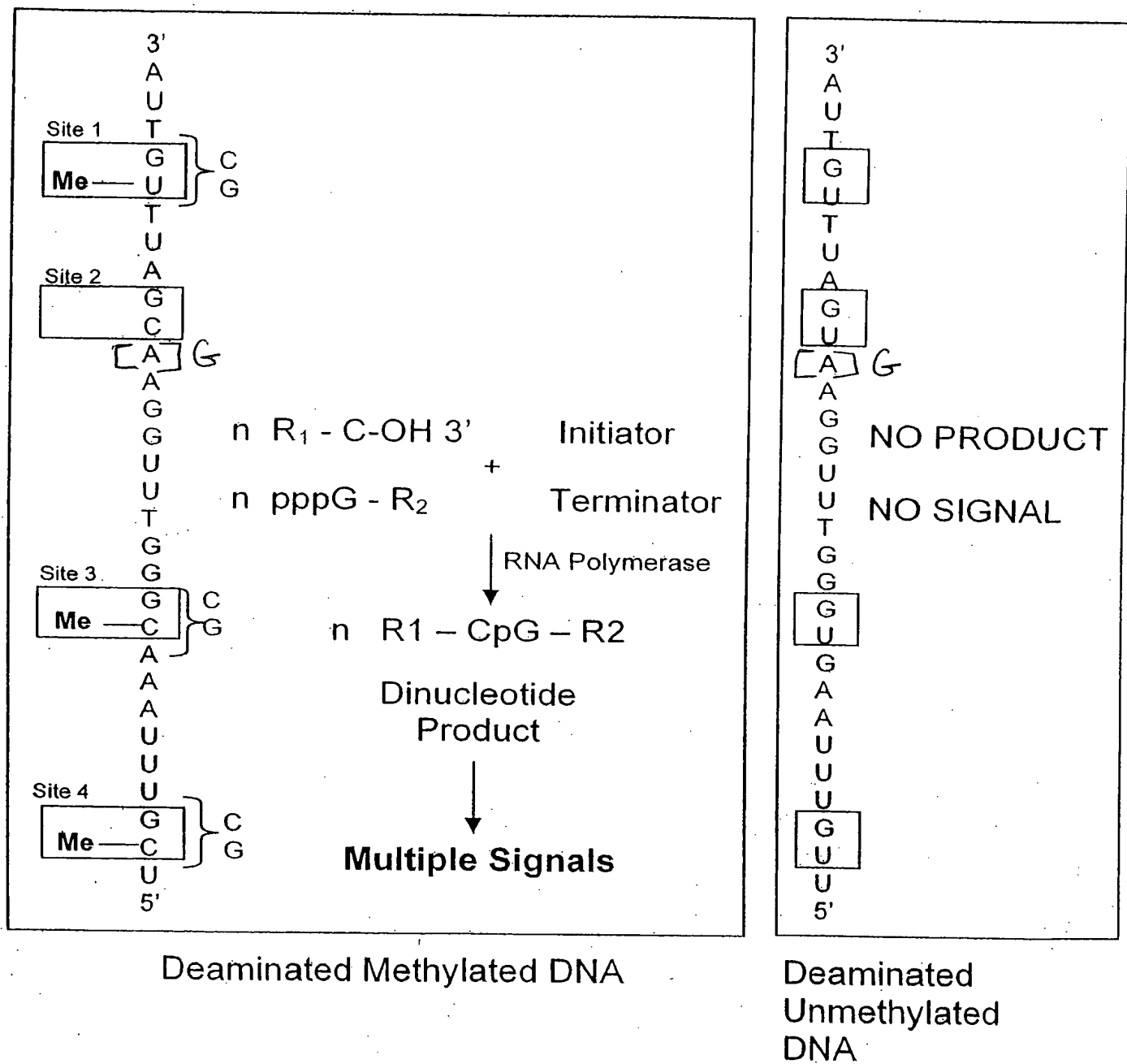
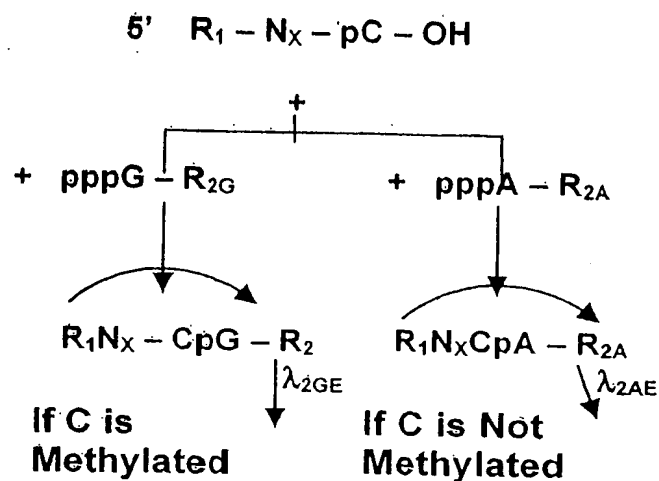
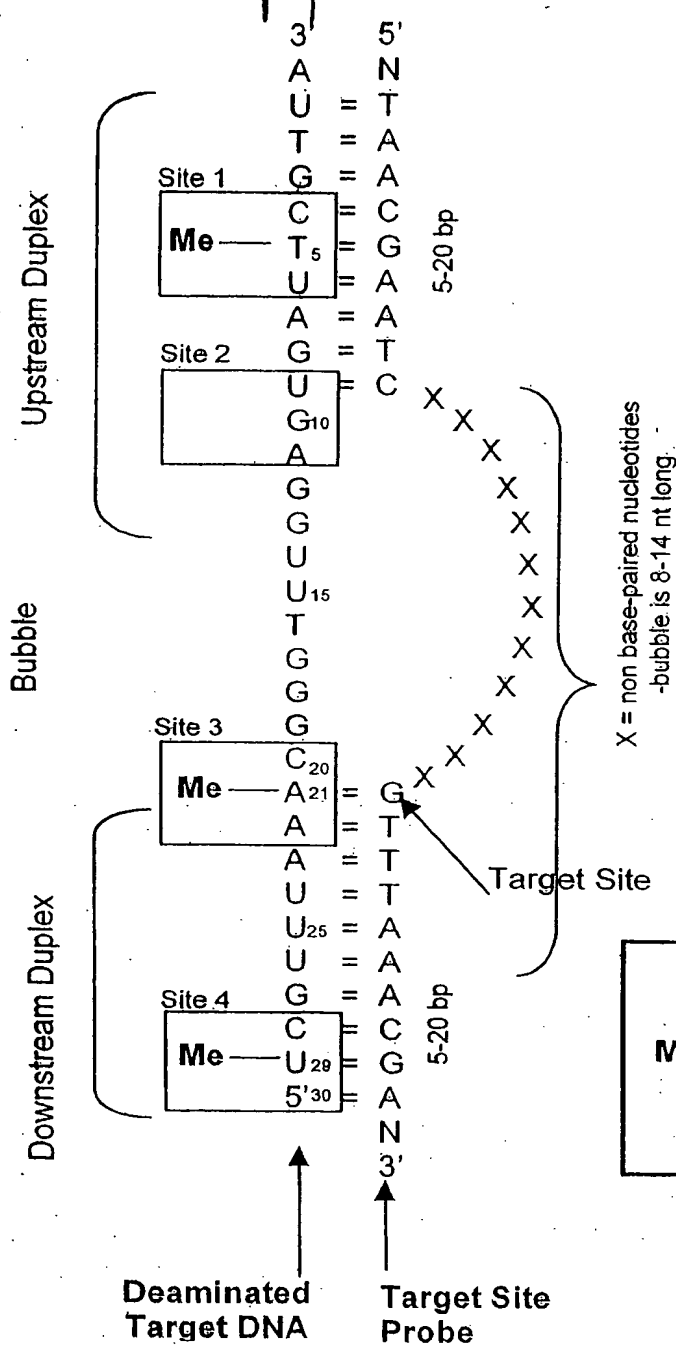


FIGURE 14

entire nucleotide strand
moved down by 1 nucleotide
so that bases pair correctly



- M = 1 If both copies are 100% methylated: Only λ_{2GE} detected
- M = 0.5 If 1 copy is methylated: Both λ_{2GE} and λ_{2AE} detected
- M = 0 If both copies unmethylated: only λ_{2AE} detected

$$M = \text{Methylation Index} = \frac{E\lambda_{2GE}}{E\lambda_{2GE} + E\lambda_{2GA}}$$

FIGURE 15

ATTATCCAGT
 AGGCAGATTAAGCATGTGCTTAAGGCATCAGCAAAGTCTGAGCAATCCATTTTTTAAAACGTAGTACATGTTTT
 TGATAAGCTTAAAAAGTAGTAGTCACAGGAAAAATTAGAACTTTTACCTCCTTGCGCTTGTTATACTCTTTAGT
 GCTGTTTAACTTTTCTTTGTAAGTGAGGGTGGTGGAGGGTGCCCATATCTTTTCAGGGAGTAAGTTCTTCTT
 GGTCTTTCTTTCTTTCTTTCTTTCTTTCTTTCTTTCTTTGAGACCAAGTTTCGCTCTTGTCTCCAGGCTGGAGTGCAA
 TGGCGCGATCTCGGCTCACTGCAACCTCCGCCTTCTCCTGGGTTCAAGCGATTCTCCTACATCAGCCTCCGA
 GTAGCTGGGATTACAGGCATGCGCCACCAAGCCCCGCTAATTTTGTATTTTTTAGTAGAGACAGGGTTTCGC
 CATGTTGGTCAGGCTTGTCTCGAACTCCTGGCCTCAGGTGATCCGCCTGTCTCGGCCTCCAGAAATGCTGG
 GATTATAGACGTGAGCCACCGCATCCGGACTTTCTTTTATGTAATAGTGATAATTCTATCCAAAGCATTTTTT
 TTTTTTTTGTAGTGGAGTCTCATTCTGTCAACCCAGGCTGGAGGGTGGTGGCGCGATCTCGGCTTACTGCAA
 CCTCTGCCTCCCGGGTTCAAGCGATTCTCCTGCCTCAGCCTCCTGAGTAGCTGGAATTACACACGTGCGCCA
 CCATGGCCAGCTAATTTTTGTATTTTTAGTAGAGACGGGGTGTCAACATTTTGGCCAAGCTGGCCTCGAACTC
 CTGACCTCAGGTGATCTGCCCCGCTCGGCTTCCCAAAGTGCTGGGATTACAGGTGTGAGCCACCGCGTCCT
 GCTCCAAAGCATTTTTCTTTCTATGCCTCAAAACAAGATTGCAAGCCAGTCCTCAAAGCGGATAATTCAAGAGC
 TAACAGGTATTAGCTTAGGATGTGTGGCACTGTTCTTAAGGCTTATATGTATTAATACATCATTTAAACTCACA
 ACAACCCCTATAAAGCAGGGGGGCACTCATATCCCTTCCCCCTTTATAATTACGAAAAATGCAAGGTATTTTC
 AGTAGGAAAGAGAAATGTGAGAAGTGTGAAGGAGACAGGACAGTATTGAAGCTGGTCTTTGGATCACTGTG
 CAACTCTGCTTCTAGAACACTGAGCACTTTTTCTGGTCTAGGAATTATGACTTTGAGAATGGAGTCCGTCCTT
 CCAATGACTCCCTCCCCATTTTCTATCTGCCTACAGGCAGAAATTCTCCCCGTCGGTATTAAATAAACCTCA
 TCTTTTCAGAGTCTGCTCTTATACCAGGCAATGTACAGTCTGAGAAACCCTTGCCCCAGACAGCGCTTTTAC
 ACGCAGGAGGGGAAGGGGAGGGGAAGGAGAGAGCAGTCCGACTCTCCAAAAGGAATCCTTTGAACTAGGG
 TTTCTGACTTAGTGAACCCCGCGCTCCTGAAAATCAAGGGTTGAGGGGGTAGGGGGACACTTTCTAGTCGTA
 CAGGTGATTTGATTCTCGGTGGGGCTCTCACAACCTAGGAAAGAATAGTTTTGCTTTTTCTTATGATTAAGA
 AGAAGCCATACTTTCCCTATGACACCAAACACCCCGATTCAATTTGGCAGTTAGGAAGGTTGTATCGCGGAG
 GAAGGAAACGGGGCGGGGGCGGATTCTTTTTAACAGAGTGAACGCACTCAAACACGCCTTTGCTGGCAGG
 CGGGGGAGCGCGGCTGGGAGCAGGGAGGCGGAGGGCGGTGTGGGGGGCAGGTGGGGAGGAGCCAGT
 CCTCCTTCTTGCCAACGCTGGCTCTGGCGAGGGCTGTTCCGGCTGGTGCCCCCGGGGAGACCCAACC
 TGGGGCGACTTCAGGGGTGCCACATTCTGCTAAGTCTCGGAGTTAATAGCACCTCCTCCGAGCACTCGCTC
 ACGGCGTCCCCTTGCTGGAAGATACCGCGGTCCCTCCAGAGGATTTGAGGGACAGGGTTCGGAGGGGGC
 TCTTCCGCCAGCACCGGAGGAAGAAAGAGGAGGGGCTGGCTGGTCAACAGAGGGTGGGGCGGACCGCGT
 GCGCTCGGCGGCTGCGGAGAGGGGGAGAGCAGGCAGCGGGCGGGGAGCAGCATGGAGCCGGCGGC
 GGGGAGCAGCATGGAGCCTTCGGCTGACTGGCTGGCCACGGCCGCGGCCCGGGGTGGGTAGAGGAGGT
 GCGGGCGCTGCTGGAGGCGGGGGCGCTGCCAACGCACCGAATAGTTACGGTTCGGAGGCGGATCCAGGT
 GGGTAGAGGTCTGCAGCGGGAGCAGGGGATGGCGGGCGACTCTGGAGGACGAAGTTTGCAGGGGAATT
 GGAATCAGGTAGCGCTTCGATTCTCCGAAAAAGGGGAGGCTTCTGGGGAGTTTTGAGAAGGGGTTTGT
 ATCAGAGACCTCCTCCTGGCGACGCCCTGGGGCTTGGGAAGCCAAGGAAGAGGAATGAGGAGCCACGCG
 CGTACAGATCTCTCGAATGCTGAGAAGATCTGAAGGGGGGAACATTTTGTATTAGATGGAAGTATGCTCTTT
 ATCAGATACAAAATTTACGAACGTTTGGGATAAAAAGGGAGTCTTAAAGAAATGTAAGATGTGCTGGGACTAC
 TTAGCCTCCAATTCACAGATACCTGGATGGAGCTTATCTTTCTTACTAGGAGGGATTATCAGTGGAAATCTGT
 GGTGTATGTTGGAATAAATATCGAATATAAATTTTGTATCGAAATTATTCAGAAGCGGCCGGGCGCGGTGCCTC
 ACGCCTTGTAATCCCTTCACTTTGGGAGATCAAGGCGGGGGGAATCACCTGAGGTTCGGGAGTTTCGAGACCA
 GCCTGGCCAACAGGTGAAACCTCGCCTCTACTAAAAATACAAAAAGTAGCCGGGGGTGGTGGCAGGCGCCT
 GTAATCCCAGCTACTCGGGAGGTTGAGGCAGGAGAATCGCTTGAACCCGGGAGGCTGAGGTTGTAGTGAAC
 AGCAGATGGAGCTTCACTCCAGCCTGGGTGACAGAGTGAGACTTTGTGCAAGAAAGAAAGAGAGAA
 AGAGAGAGAGAAAAATTATTCAGAAGCAACTACATATTGTGTTTATTTTAACTGAGTAGGGCAAATAAATATA
 TGTTTGCTGTAGGAACCTAGGAAATAATGAGCCACATTGTGATCATTCCAGAGGTAATATGTAGTTACCAT
 TTTGGGAATATCTGCTAACATTTTTGCTCTTTTACTATCTTTAGCTTACTTGATATAGTTTGTGATAAGAG
 TTTTCAATTCCTCATTTTTGAACAGAGGTGTTTCTCCTCTCCCTACTCCTGTTTTGTGAGGGAGTTAGGGAG
 GATTTAAAAGTAATTAATACATGGGTAACCTTAGCATCTCTAAATTTTGCCAACAGCTTGAACCCGGGAGTTTG
 GCTTTGTAGTCTACAATATCTTAGAAGAGACCTTATTTGTTTAAAAACAAAAAGGAAAAAGAAAGTGGATAG
 TTTTGACAATTTTTAATGGAG

Figure [30]

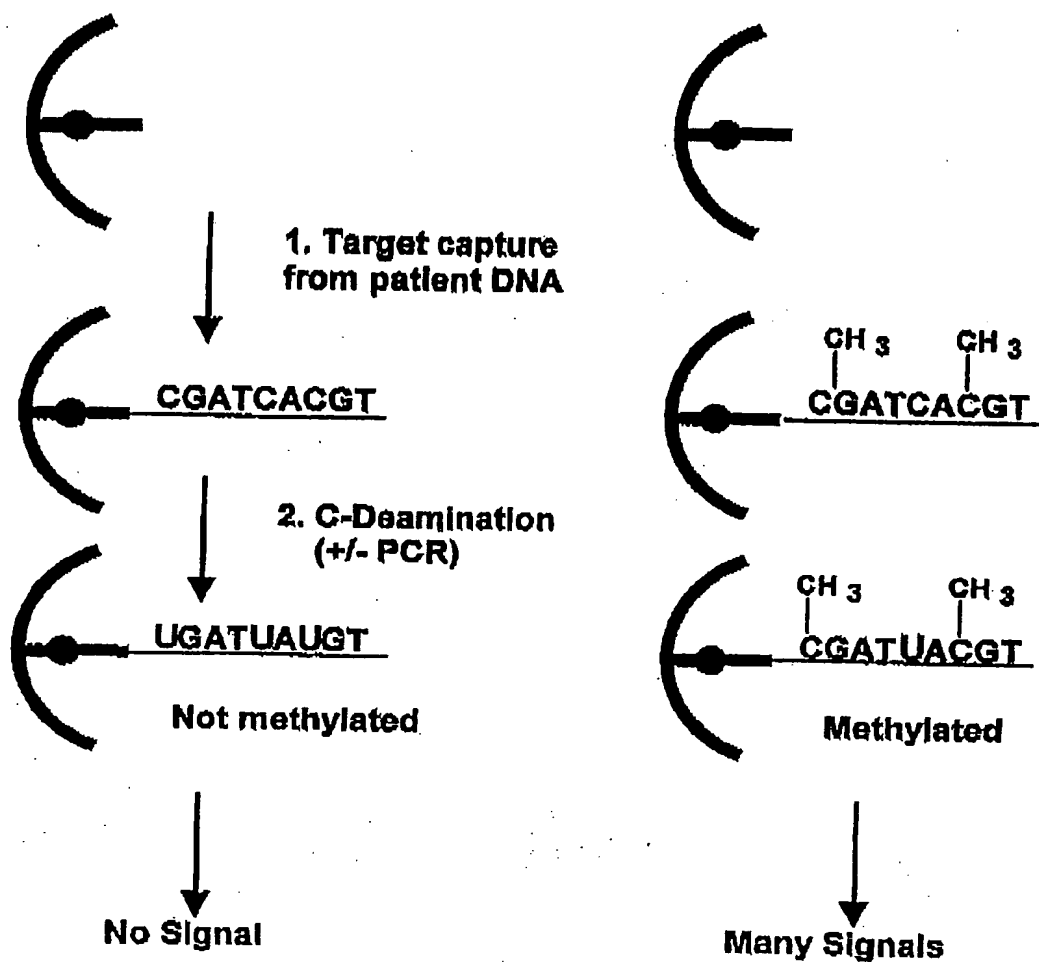


FIGURE [31]

30

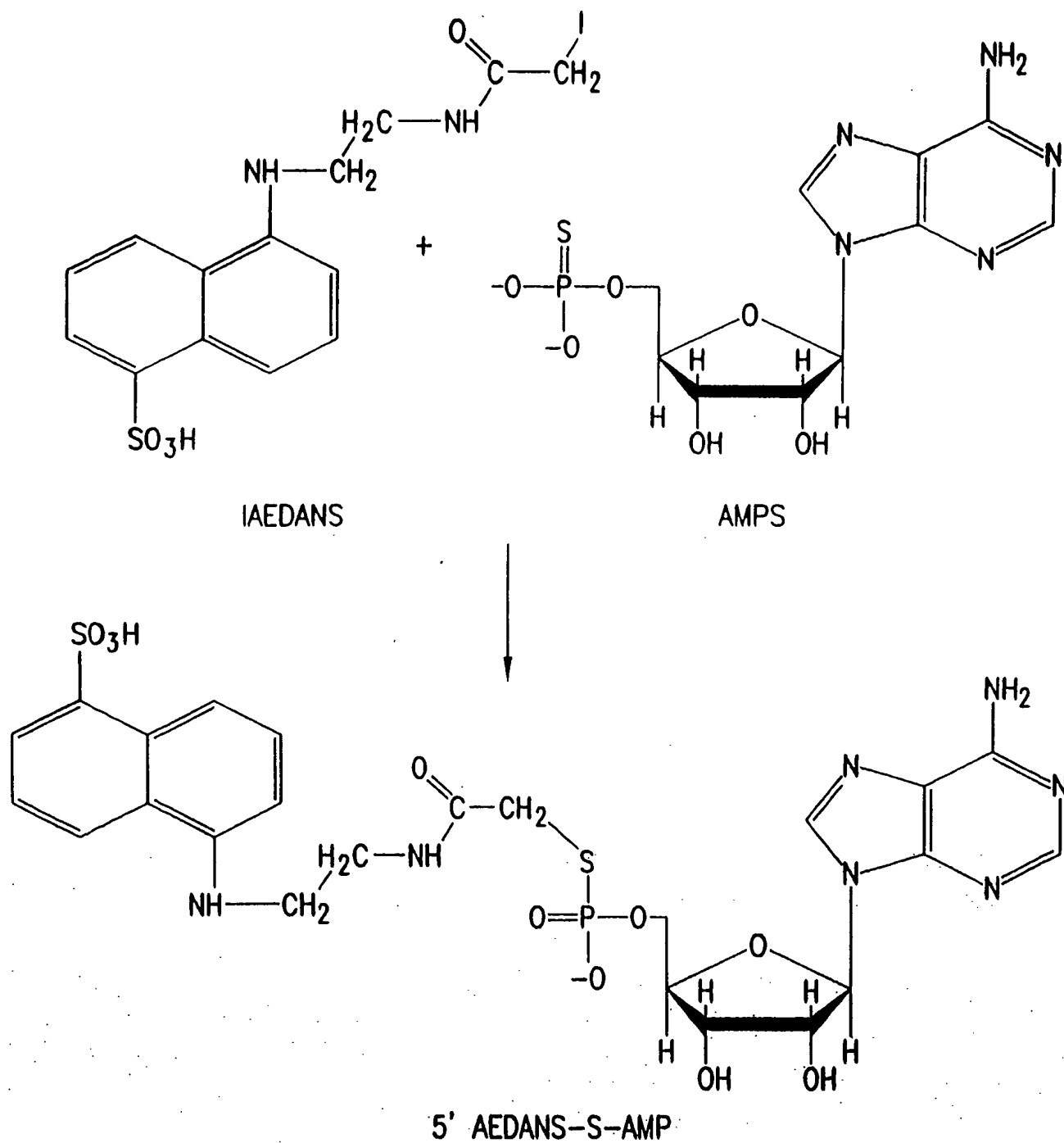


FIG.3

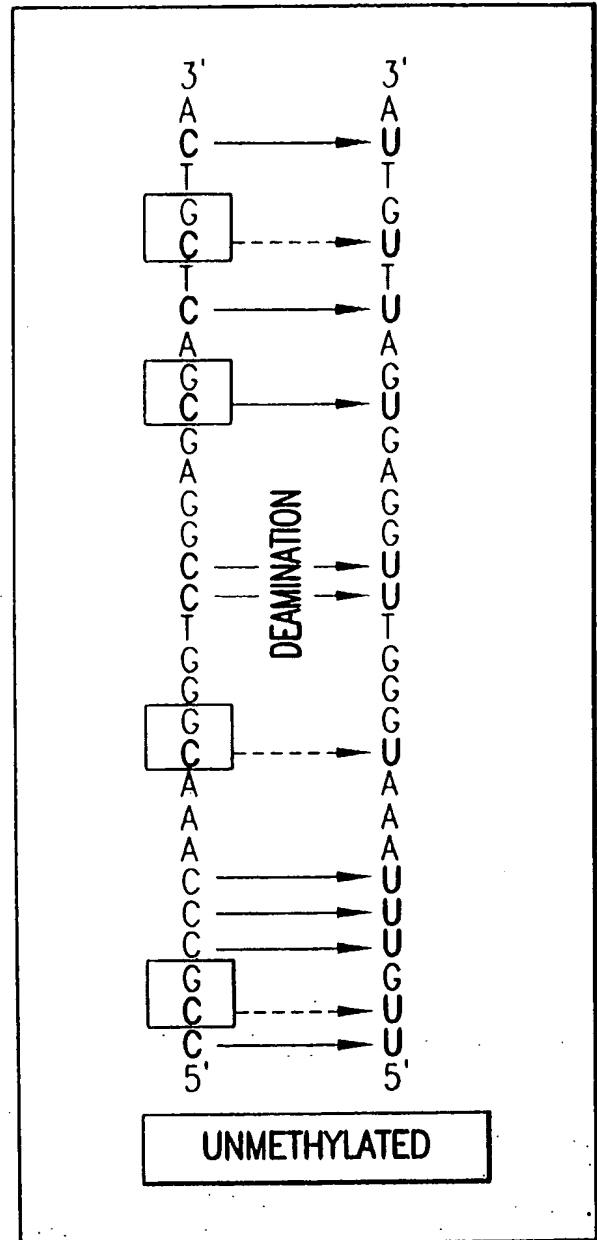
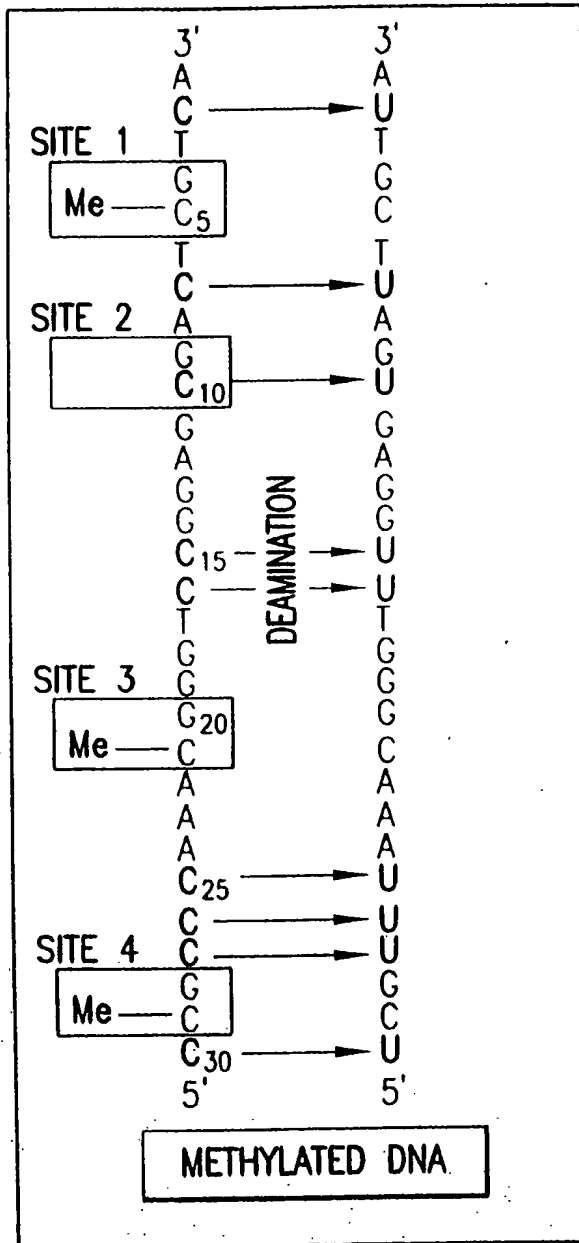


FIG.13





ATATACCTGGGCTACAAAGGTTAAGTCACCCAGGATGAAATATAACTTTAAACAGAGCTGGATTATCCAGT
AGGCAGATTAAGCATGTGCTTAAGGCATCAGCAAAGTCTGAGCAATCCATTTTTTAAACGTAAGTACATGTTTT
TGATAAGCTTAAAAAGTAGTAGTCACAGGAAAAATTAGAACTTTTACCTCCTTGCGCTTGTTATACTCTTAGT
GCTGTTTAACTTTTCTTTGTAAGTGAGGGTGGTGGAGGGTGCCATAATCTTTTCAGGGAGTAAGTTCTTCTT
GGTCTTTCTTTCTTTCTTTCTTTCTTTCTTTCTTGAGACCAAGTTTCGCTCTTGCTCTCCAGGCTGGAGTGCAA
TGGCGCGATCTCGGCTCACTGCAACCTCCGCCTTCTCTGGGTTCAAGCGATTCTCTACATCAGCCTCCGA
GTAGCTGGGATTACAGGCATGCGCCACCAAGCCCCGCTAATTTTGATTTTTTAGTAGAGACAGGGTTTCGC
CATGTTGGTCAGGCTTGCTCGAACTCCTGGCCTCAGGTGATCCGCCTGTCTCGGCCTCCAGAATGCTGG
GATTATAGACGTGAGCCACCGCATCCGGACTTCTTTTATGTAATAGTGATAATTCTATCCAAAGCATTTTTTT
TTTTTTTTTGAGTCGGAGTCTCATTCTGTCAACCAGGCTGGAGGGTGGTGGCGCGATCTCGGCTTACTGCAA
CCTCTGCCTCCCGGGTTCAAGCGATTCTCTGCCTCAGCCTCCTGAGTAGCTGGAATTACACACGTGCGCCA
CCATGGCCAGCTAATTTTTGTATTTTAGTAGAGACGGGGTGTACCATTTTGCCAAGCTGGCCTCGAACTC
CTGACCTCAGGTGATCTGCCCCGCTCGGCTTCCCAAAGTGCTGGGATTACAGGTGTGAGCCACCGCGTCCT
GCTCCAAAGCATTCTTTCTATGCCTCAAACAAGATTGCAAGCCAGTCTCAAAGCGGATAATTCAAGAGC
TAACAGGTATTAGCTTAGGATGTGTGGCACTGTTCTTAAGGCTTATATGTATTAATACATCATTTAAACTCACA
ACAACCCCTATAAAGCAGGGGGCACTCATATTCCCTTCCCCCTTTATAATTACGAAAAATGCAAGGTATTTTC
AGTAGGAAAGAGAAATGTGAGAAGTGTGAAGGAGACAGGACAGTATTTGAAGCTGGTCTTTGGATCACTGTG
CAACTCTGCTTCTAGAACACTGAGCACTTTTTCTGGTCTAGGAATTATGACTTTGAGAATGGAGTCCGTCCTT
CCAATGACTCCCTCCCCATTTTCTATCTGCCTACAGGCAGAATTCTCCCCGTCGTTAATAAACCTCA
TCTTTTCAGAGTCTGCTCTTATACCAGGCAATGTACACGTCTGAGAAACCTTGCCCCAGACAGCCGTTTTAC
ACGCAGGAGGGGAAGGGGAGGGGAAGGAGAGAGCAGTCCGACTCTCCAAAGGAATCCTTTGAAGTAGGG
TTTCTGACTTAGTGAACCCCGCGCTCTGAAAATCAAGGGTTGAGGGGGTAGGGGGACACTTTCTAGTCGTA
CAGGTGATTTGATTCTCGGTGGGGCTCTCACAACCTAGGAAAGAATAGTTTTGCTTTTTCTTATGATTAAAAGA
AGAAGCCATACTTTCCCTATGACACCAAACACCCCGATTCAATTTGGCAGTTAGGAAGGTTGTATCGCGGAG
GAAGGAAACGGGGCGGGGGCGGATTTCTTTTTAACAGAGTGAACGCACTCAAACACGCCCTTTGCTGGCAGG
CGGGGGAGCGCGGCTGGGAGCAGGGAGGCCGGAGGGCGGTGTGGGGGGCAGGTGGGGAGGAGCCAGT
CCTCCTTCTTGCCAACGCTGGCTCTGGCGAGGGCTGCTTCCGGCTGGTGCCCCGGGGGAGACCCAACC
TGGGGCGACTTCAGGGGTGCCACATTGCTAAGTGCTCGGAGTTAATAGCACCTCCTCCGAGCACTCGCTC
ACGGCGTCCCCTTGCTTGGAAAGATACCGCGGTCCCTCCAGAGGATTTGAGGGACAGGGTCGGAGGGGGC
TCTTCCGCCAGCACCGGAGGAAGAAAGAGGAGGGGCTGGCTGGTCACCAGAGGGTGGGGCGGACCGCGT
GCGCTCGGCGGCTGCGGAGAGGGGGAGAGCAGGCAGCGGGCGGGGGAGCAGCATGGAGCCGGCGGC
GGGGAGCAGCATGGAGCCTTCGGCTGACTGGCTGGCCACGGCCGCGGGCCGGGGTGGGTAGAGGAGGT
GCGGGCGCTGCTGGAGGCGGGGGCGCTGCCAACGCACCGAATAGTTACGGTCGGAGGCCGATCCAGGT
GGGTAGAGGGTCTGCAGCGGGAGCAGGGGATGGCGGGCGACTCTGGAGGACGAAGTTTGAGGGGAATT
GGAATCAGGTAGCGCTTCGATTCTCCGGAAAAAGGGGAGGCTTCTGGGGAGTTTTGAGAAGGGGTTTGTA
ATCACAGACCTCCTCCTGGCGACGCCCTGGGGCTTGGGAAGCCAAGGAAGAGGAATGAGGAGCCACGCG
CGTACAGATCTCTCGAATGCTGAGAAGATCTGAAGGGGGGAACATATTTGTATTAGATGGAAGTATGCTCTT
ATCAGATACAAAATTACGAACGTTTGGGATAAAAAGGGAGTCTTAAAGAAATGTAAGATGTGCTGGGACTAC
TTAGCCTCCAATTCACAGATACCTGGATGGAGCTTATCTTTCTTACTAGGAGGGATTATCAGTGGAAATCTGT

FIG. 29A

GGTGTATGTTGGAATAAATATCGAATATAAATTTTGATCGAAATTATTCAGAAGCGGCCGGGCGCGGTGCCTC
ACGCCTTGTAATCCCTTCACTTTGGGAGATCAAGGCGGGGGAATCACCTGAGGTCGGGAGTTCGAGACCA
GCCTGGCCAACAGGTGAAACCTCGCCTCTACTAAAAATACAAAAAGTAGCCGGGGGTGGTGGCAGGCGCCT
GTAATCCCAGCTACTCGGGAGGTTGAGGCAGGAGAATCGCTTGAACCCGGGAGGCTGAGGTTGTAGTGAAC
AGCGAGATGGAGCCACTTCACTCCAGCCTGGGTGACAGAGTGAGACTTTGTGCGAAAGAAAGAAAGAGAGAA
AGAGAGAGAGAAAAATTATTCAGAAGCAACTACATATTGTGTTTATTTTAACTGAGTAGGGCAAATAAATATA
TGTTTGCTGTAGGAACCTAGGAAATAATGAGCCACATTCATGTGATCATTCCAGAGGTAATATGTAGTTACCAT
TTTGGGAATATCTGCTAACATTTTGTCTTTTACTATCTTTAGCTTACTTGATATAGTTTATTTGTGATAAGAG
TTTTCAATTCCTCATTTTTGAACAGAGGTGTTTCTCCTCTCCCTACTCCTGTTTTGTGAGGGAGTTAGGGGAG
GATTTAAAAGTAATTAATACATGGGTAAGTATGATCTCTAAAATTTTGCCAACAGCTTGAACCCGGGAGTTTG
GCTTTGTAGTCCTACAATATCTTAGAAGAGACCTTATTTGTTTAAAAACAAAAAGGAAAAAGAAAAGTGGATAG
TTTTGACAATTTTAAATGGAG

FIG. 29B

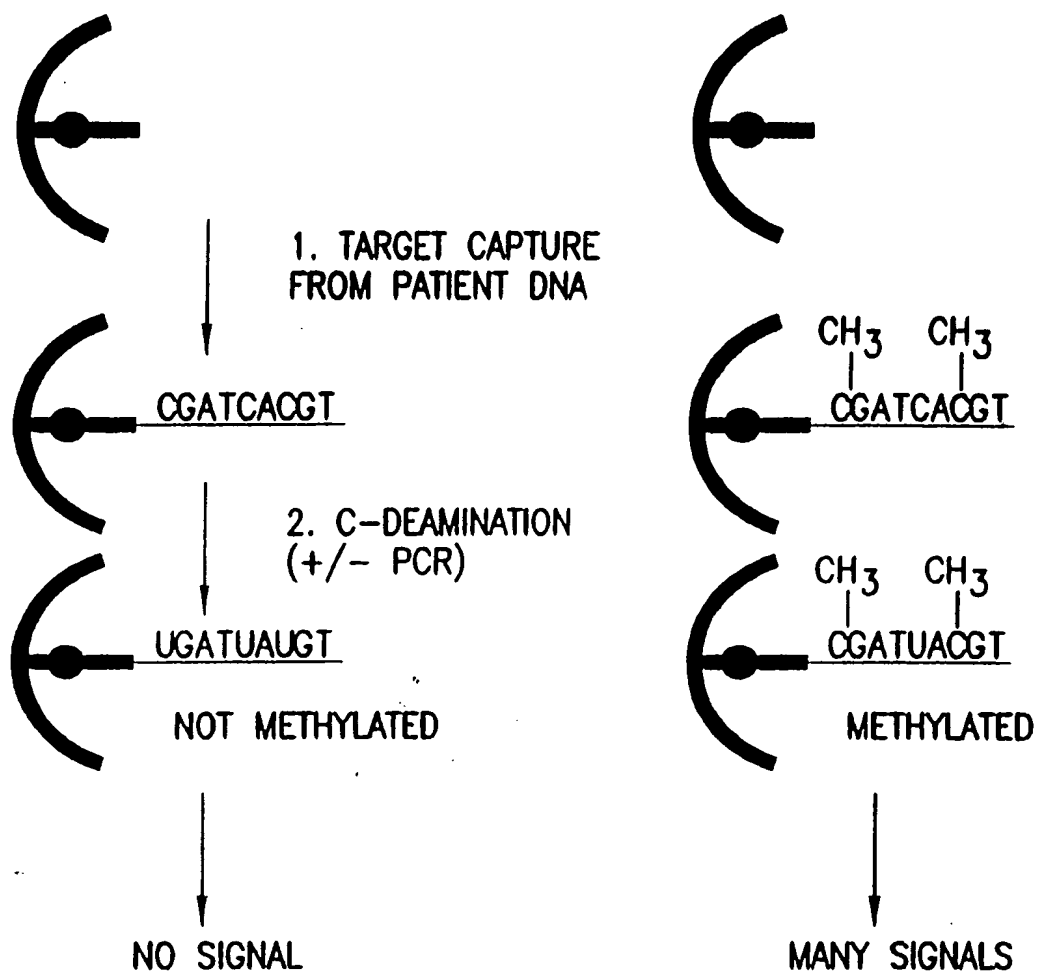


FIG. 30